

IN THE CLAIMS:

- 1 1. (Cancelled)
- 1 2. (Previously Presented) The system of claim 60 wherein the user interface system
2 comprises a command line interface (CLI) configured to support the command set.
- 1 3. (Previously Presented) The system of claim 60 wherein the command set further
2 comprises an igroup command that determines whether a set of initiators may utilize data
3 access command proxying.
- 1 4. (Original) The system of claim 3 wherein the set of initiators comprises at least one
2 fibre channel world wide name.
- 1 5. (Original) The system of claim 3 wherein the set of initiators comprises one or more
2 iSCSI identifiers.
- 1 6. (Original) The system of claim 3 wherein the igroup command sets an igroup option to
2 determine whether members of a set of initiators may use a partner port for proxying data
3 access command.
- 1 7. (Original) The system of claim 3 wherein the command set further comprises a cfmode
2 command that sets a cluster mode for the clustered storage system.
- 1 8. (Original) The system of claim 7 wherein the cluster mode enables the clustered
2 storage system to proxy data access requests received by a first storage system in the
3 clustered storage system to a second storage system in the clustered storage system.

- 1 9. (Original) The system of claim 7 wherein the cluster mode enables a first storage
- 2 system in the clustered storage system to assume an identity of a second storage system
- 3 in the clustered storage system.

- 1 10. (Original) The system of claim 7 wherein the cluster mode enables proxying of data
- 2 access requests received by a first storage system in the clustered storage system to a
- 3 second storage system in the clustered storage system and further enables the first storage
- 4 system to assume an identity of the second storage system.

- 1 11. (Previously Presented) The system of claim 60 wherein the command for setting a
- 2 cluster mode comprises a cfmode command.

- 1 12. (Previously Presented) The system of claim 60 wherein the user interface system
- 2 further comprises a graphical user interface having functionality to implement the
- 3 command set.

- 1 13. (Cancelled)

- 1 14. (Previously Presented) The method of claim 63 wherein the cluster mode comprises a
- 2 partner mode; and
- 3 wherein the clustered storage system is enabled to proxy data access requests
- 4 received by a first storage system in the clustered storage system to a second storage
- 5 system.

- 1 15. (Previously Presented) The method of claim 63 wherein the cluster mode comprises a
- 2 standby mode; and
- 3 wherein a first storage system in the clustered storage system is enabled to assume
- 4 an identity of a second storage system in the clustered storage system.

- 1 16. (Previously Presented) The method of claim 63 further comprising providing a GUI
2 implementing commands available through the user interface system.

- 1 17. (Previously Presented) The method of claim 63 further comprising providing a GUI
2 window for setting a cluster mode of the clustered storage system.

- 1 18. (Previously Presented) The method of claim 16 further comprising providing a GUI
2 window for setting a proxy option for an initiator group.

- 1 19. (Cancelled)

- 1 20. (Previously Presented) The system of claim 64 further comprising means for
2 determining whether a set of initiators may utilize data access command proxying.

- 1 21. (Previously Presented) The system of claim 64 wherein user interface means further
2 comprises means for determining whether a set of initiators may utilize data access
3 command proxying.

- 1 22. (Original) The system of claim 21 wherein the set of initiators comprises at least one
2 fibre channel world wide name.

- 1 23. (Original) The system of claim 21 wherein the set of initiators comprises one or more
2 iSCSI identifiers.
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- 1 24. (Previously Presented) The system of claim 64 wherein the cluster mode enables the
2 clustered storage system to proxy data access requests received by a first storage system
3 in the clustered storage system to a second storage system in the clustered storage system.

- 1 25. (Previously Presented) The system of claim 64 wherein the cluster mode enables a
- 2 first storage system in the clustered storage system to assume an identity of a second
- 3 storage system in the clustered storage system.

- 1 26. (Previously Presented) The system of claim 64 wherein the cluster mode enables
- 2 proxying of data access requests received by a first storage system in the clustered
- 3 storage system to a second storage system in the clustered storage system and further
- 4 enables the first storage system to assume an identity of the second storage system.

- 1 27. (Cancelled)

- 1 28. (Previously Presented) The computer readable medium of claim 65 wherein the
- 2 cluster mode comprises a partner mode; and
- 3 wherein the clustered storage system is enabled to proxy data access requests
- 4 received by a first storage system in the clustered storage system to a second storage
- 5 system.

- 1 29. (Previously Presented) The computer readable medium of claim 65 wherein the
- 2 cluster mode comprises a standby mode; and
- 3 wherein a first storage system in the clustered storage system is enabled to assume
- 4 an identity of a second storage system in the clustered storage system.

- 1 30. (Previously Presented) The computer readable medium of claim 65 further
- 2 comprising the step of providing a GUI implementing commands available through the
- 3 user interface system.

- 1 31. (Previously Presented) The computer readable medium of claim 65 further
- 2 comprising the step of providing a GUI window for setting a cluster mode of the
- 3 clustered storage system.

- 1 32. (Previously Presented) The computer readable medium of claim 65 further
- 2 comprising the step of providing a GUI window for setting a proxy option for an initiator
- 3 group.

- 1 33. (Cancelled)

- 1 34. (Previously Presented) The system of claim 66, wherein the interface comprises a
- 2 command line interface (CLI) configured to support the command set.

- 1 35. (Previously Presented) The system of claim 66, wherein the command set further
- 2 comprises an igrup command that determines whether a set of initiators may utilize data
- 3 access command proxying.

- 1 36. (Previously Presented) The system of claim 35, wherein the set of initiators comprises
- 2 at least one fibre channel world wide name.

- 1 37. (Previously Presented) The system of claim 35, wherein the set of initiators comprises
- 2 one or more iSCSI identifiers.

- 1 38. (Previously Presented) The system of claim 35, wherein the igrup command sets an
- 2 igrup option to determine whether members of a set of initiators may use a partner port
- 3 for proxying data access command.

- 1 39. (Previously Presented) The system of claim 66, wherein the cluster mode enables the
- 2 clustered storage system to proxy data access requests received by a first storage system
- 3 in the clustered storage system to a second storage system in the clustered storage system.

- 1 40. (Previously Presented) The system of claim 66, wherein the cluster mode enables a
- 2 first storage system in the clustered storage system to assume an identity of a second
- 3 storage system in the clustered storage system.

- 1 41. (Previously Presented) The system of claim 66, wherein the cluster mode enables
- 2 proxying of data access requests received by a first storage system in the clustered
- 3 storage system to a second storage system in the clustered storage system and further
- 4 enables the first storage system to assume an identity of the second storage system.

- 1 42. (Cancelled)

- 1 43. (Previously Presented) The method of claim 67, wherein the interface is a command
- 2 line interface.

- 1 44. (Previously Presented) The method of claim 67, wherein the interface is a graphical
- 2 user interface.

- 1 45. (Previously Presented) The method of claim 67, wherein the selected cluster mode
- 2 enables the clustered storage system to proxy data access requests received by a first
- 3 storage system in the clustered storage system to a second storage system in the clustered
- 4 storage system.

- 1 46. (Previously Presented) The method of claim 67, wherein the selected cluster mode
- 2 enables a first storage system in the clustered storage system to assume an identity of a
- 3 second storage system in the clustered storage system.

- 1 47. (Previously Presented) The method of claim 67, wherein the cluster mode enables
- 2 proxying of data access requests received by a first storage system in the clustered
- 3 storage system to a second storage system in the clustered storage system and further
- 4 enables the first storage system to assume an identity of the second storage system.

- 1 48. (Cancelled)

1 49. (Previously Presented) The system of claim 68, wherein the plurality of failure
2 modes comprises a standby mode, a partner mode, a dual fabric mode, and a mixed
3 mode.

1 50. – 58. (Cancelled)

1 59. (Previously Presented) The system of claim 60 wherein the igroup allows a user to
2 define related clients by a logical name.

1 60. (Currently Amended) A system configured to simplify management of a clustered
2 storage system having a plurality of failover modes, the system comprising:

3 a user interface system that allows a user to define ~~a-~~the plurality of failover
4 modes in the clustered storage system, wherein each failover mode automatically
5 configures one or more ports on a selected storage system or a partner storage system in
6 response to a failover condition, wherein the partner storage system is configured to
7 receive requests directed to the partner storage system and the selected storage system,
8 each failover mode further configuring the partner storage system with a world wide node
9 name and a world wide port name from the selected storage system to allow the partner
10 storage system to assume an identity of the selected storage system; and

11 a command set implemented by the user interface system, the command set
12 including a first command and a second command,

13 the first command configured to permit the user to specify a specific
14 initiator group (igroup) to utilize the one or more ports for data access proxying in
15 the clustered storage system wherein the igroup is a logical named entity assigned
16 to one or more addresses that are associated with one or more initiators and the
17 igroup is used by higher layer vdisk commands to allow the data access proxying
18 to ~~a-~~the partner storage system,

19 the second command configured to set a cluster mode, the cluster mode
20 including at least one of the plurality of failover modes in which a storage system
21 is to operate,

22 wherein the command set further provides information specific to ~~the~~ failover
23 operations of the one or more ports to the user on the user interface system.

1 61. (Previously Presented) The system of claim 60 wherein data access at a lun level is
2 not affected by reorganization of the initiators.

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2 62. (Previously Presented) The system of claim 60 wherein data access proxying
3 comprises receiving, at a proxy port of a first storage system, a command to be forwarded
4 to a second storage system for execution.

1 63. (Currently Amended) A method for simplifying management of a clustered storage
2 system having a plurality of failover modes, comprising:

3 providing a user interface system that allows a user to define ~~a~~the plurality of
4 failover modes in ~~a~~the clustered storage system wherein each failover mode
5 automatically configures one or more ports on a selected storage system or a partner
6 storage system in response to a failover condition, wherein the partner storage system is
7 configured to receive requests directed to the partner storage system and the selected
8 storage system, each failover mode further configuring the partner storage system with a
9 world wide node name and a world wide port name from the selected storage system to
10 allow the partner storage system to assume an identity of the selected storage system; and

11 executing a command set supported by the user interface system, the command
12 set including a first command and a second command,

13 the first command configured to permit the user to specify a specific
14 initiator group (igroup) to utilize the one or more ports for data access proxying in
15 the clustered storage system wherein the igroup is a logical named entity assigned
16 to one or more addresses that are associated with one or more initiators and the
17 igroup is used by higher layer vdisk commands to allow the data access proxying
18 to ~~a~~the partner storage system,

19 the second command configured to set a cluster mode for the clustered
20 storage system, the cluster mode defining one of ~~a-~~the plurality of failover modes
21 in which a storage system is to operate,
22 wherein the command set further provides information specific to ~~the~~-failover
23 operations of the one or more ports to the user on the user interface system, and each
24 failover mode automatically configures the one or more ports on ~~a-~~the selected storage
25 system or ~~a-~~the partner storage system in response to ~~a-~~the failover condition, the partner
26 storage system configured to receive requests directed to the partner storage system and
27 ~~the-a~~ failed storage system.

1 64. (Currently Amended) A system configured to simplify management of a clustered
2 storage system having a plurality of failover modes, the system comprising:
3 a user interface means for implementing a command line interface that allows a
4 user to define ~~a-~~the plurality of failover modes in a ~~the~~ clustered storage system wherein
5 each failover mode automatically configures one or more ports on a selected storage
6 system or a partner storage system in response to a failover condition, wherein the partner
7 storage system is configured to receive requests directed to the partner storage system
8 and the selected storage system, each failover mode further configuring the partner
9 storage system with a world wide node name and a world wide port name from the
10 selected storage system to allow the partner storage system to assume an identity of the
11 selected storage system; and
12 means for executing a command set, the command set including a first
13 command and a second command,
14 the first command configured to permit the user to specify a specific
15 initiator group (igroup) to utilize the one or more ports for data access proxying in
16 the clustered storage system wherein the igroup is a logical named entity assigned
17 to one or more addresses that are associated with one or more initiators and the
18 igroup is used by higher layer vdisk commands to allow the data access proxying
19 to ~~a-~~the partner storage system, and

20 the second command configured to set a cluster mode, the cluster mode
21 defining one of ~~a~~the plurality of failover modes in which a storage system is to
22 operate,
23 wherein the command set further provides information specific to ~~the~~ failover
24 operations of the one or more ports to the user on the user interface system.

1 65. (Currently Amended) A non-transitory computer readable medium containing
2 executable program instructions executed by a processor, for simplifying management of
3 a clustered storage system having a plurality of failover modes, the computer readable
4 medium comprising:

5 program instructions that provide a user interface system that allows a user to
6 define ~~a~~the plurality of failover modes in ~~a~~the clustered storage system,

7 wherein each failover mode automatically configures one or more ports on
8 a selected storage system or a partner storage system in response to a failover
9 condition, and

10 wherein the partner storage system is configured to receive requests
11 directed to the partner storage system and the selected storage system, each
12 failover mode further configuring the partner storage system with a world wide
13 node name and a world wide port name from the selected storage system to allow
14 the partner storage system to assume an identity of the selected storage system;
15 and

16 program instructions that execute a command set supported by the user interface
17 system to set a cluster mode for the clustered storage system, the command set including
18 a first command and a second command,

19 the first command configured to permit the user to specify a specific
20 initiator group (igroup) to utilize the one or more ports for data access proxying in
21 the clustered storage system wherein the igroup is a logical named entity assigned
22 to one or more addresses that are associated with one or more initiators and the
23 igroup is used by higher layer vdisk commands to allow the data access proxying
24 to ~~a~~the partner storage system,

25 the second command the cluster mode defining one of a plurality of
26 failover modes in which a storage system is to operate,
27 wherein the command set further provides information specific to the failover
28 operations of the one or more ports to the user on the user interface system.

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2 66. (Currently Amended) A system, comprising:

3 an interface that defines a plurality of failover modes for a clustered storage
4 system that allows a user to define a plurality of failover modes in a clustered storage
5 system

6 wherein each failover mode automatically configures one or more ports on
7 a selected storage system or a partner storage system in response to a failover
8 condition, and

9 wherein the partner storage system is configured to receive requests
10 directed to the partner storage system and the selected storage system, each
11 failover mode further configuring the partner storage system with a world wide
12 node name and a world wide port name from the selected storage system to allow
13 the partner storage system to assume an identity of the selected storage system;
14 and

15 a command set implemented by the interface, the command set including a first
16 command and a second command,

17 the first command configured to permit the user to specify a specific
18 initiator group (igroup) to utilize the one or more ports for data access proxying in
19 the clustered storage system wherein the igroup is a logical named entity assigned
20 to one or more addresses that are associated with one or more initiators and the
21 igroup is used by higher layer vdisk commands to allow the data access proxying
22 to ~~a~~the partner storage system,

23 the second command configured to set a cluster mode using one of the
24 plurality of failover modes, in which a storage system is to operate,
25 wherein the command set further provides information specific to the failover
26 operations of the one or more ports to the user on the user interface system.

1 67. (Currently Amended) A method, comprising:

2 providing an interface that defines a plurality of failover modes in a clustered
3 storage system wherein the cluster storage system includes a plurality of servers
4 wherein each failover mode automatically configures one or more ports on
5 a selected storage system or a partner storage system in response to a failover
6 condition, and

7 wherein the partner storage system is configured to receive requests
8 directed to the partner storage system and the selected storage system, each
9 failover mode further configuring the partner storage system with a world wide
10 node name and a world wide port name from the selected storage system to allow
11 the partner storage system to assume an identity of the selected storage system;
12 selecting a command set supported by the interface to set a cluster mode for the
13 clustered storage system, the command set including a first command and a second
14 command,

15 the first command configured to permit the user to specify a specific
16 initiator group (igroup) to utilize the one or more ports for data access proxying in
17 the clustered storage system wherein the igroup is a logical named entity assigned
18 to one or more addresses that are associated with one or more initiators and the
19 igroup is used by higher layer vdisk commands to allow the data access proxying
20 to ~~a~~the partner storage system,

21 the second command configured the cluster mode defining one of a
22 plurality of failover modes in which a storage system is to operate,

23 wherein the command set further provides information specific to ~~the~~
24 failover operations of the one or more ports to the user on the user interface
25 system; and

26 configuring the clustered storage system into the selected cluster mode.

68. (Currently Amended) A system configured to simplify management of a clustered
storage system having a plurality of failover modes, the system comprising:

an interface system that defines ~~a-the~~ plurality of failover modes in ~~a-the~~ clustered storage system automatically responding to a failover condition, wherein each failover mode configures one or more ports on a selected server or a partner server in response to a failover condition, each failover mode further configuring the partner storage system with a world wide node name and a world wide port name from the selected storage system to allow the partner storage system to assume an identity of the selected storage system; and

a command set implemented by the interface system, the command set including a first command and a second command,

the first command configured to permit the user to specify a specific initiator group (igroup) to utilize the one or more ports for data access proxying in the clustered storage system wherein the igroup is a logical named entity assigned to one or more addresses that are associated with one or more initiators and the igroup is used by higher layer vdisk commands to allow the data access proxying to ~~a-the~~ partner storage system,

the second command configured to set a cluster mode where the cluster mode includes one of the plurality of failover modes in which a storage system is to operate,

wherein the command set further provides information specific to ~~the~~ failover operations of the one or more ports to the user on the user interface system